EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	2	"6542593".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/01/22 08:26
S2	7	((predict with future with network with usage))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/01/22 08:28
S3	1	S2 and @ad<"20000519"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/01/22 08:28
S4	78	(((predict$4 determin$6 forecast$6) with future with network with usage))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/01/22 08:30
S5	1	S3 and @ad<"20000519"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/01/22 08:28
S6	18	S4 and @ad<"20000519"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/01/22 08:31
S7	821	(((predict$4 determin$6 forecast$6) with user with usage with (period time)))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/01/22 08:34
S8	187	S7 and @ad<"20000519"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/01/22 08:34

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S9	12	S8 and SLA	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/01/22 08:38
S10	178	(((predict$4 forecast$6) with user with usage with (period time)))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/01/22 08:35
S11	23	S10 and @ad<"20000519"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/01/22 08:38
S12	242	(((predict$4 forecast$6 extrapolat$6 anticipat$6 envision$6 forbod$6 foresee$6 foretell$6 guess$6 presum$6) with user with usage with (period time)))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/01/22 08:37
S13	377	(((predict$4 forecast$6 extrapolat$6 anticipat$6 envision$6 forbod$6 foresee$6 foretell$6 guess$6 presum$6) with user with (bandwidth utilization utilisation usage) with (period time)))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/01/22 08:39
S14	83	S13 and @ad<"20000519"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/01/22 08:40
S15	0	S14 and SLA	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/01/22 08:39
S16	18	(((predict$4 forecast$6 extrapolat$6 anticipat$6 envision$6 forbod$6 foresee$6 foretell$6 guess$6 presum$6) with user with (bandwidth utilization utilisation usage) with (period time))) same (compare compares comparing)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/01/22 08:40

EAST Search History

S17	0	S16 and @ad<"20000519"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/01/22 08:40
S18	230	(((predict$4 forecast$6 extrapolat$6 anticipat$6 envision$6 forbod$6 foresee$6 foretell$6 guess$6 presum$6) with user with (bandwidth utilization utilisation usage) with (period time))) and (compare compares comparing)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/01/22 08:40
S19	53	S18 and @ad<"20000519"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/01/22 08:40

US006243755B1

(12) **United States Patent**
Takagi et al.

(10) **Patent No.: US 6,243,755 B1**
(45) **Date of Patent: *Jun. 5, 2001**

(54) **INFORMATION PROCESSING SYSTEM USING INFORMATION CACHING BASED ON USER ACTIVITY**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **09/115,745**

(22) Filed: **Jul. 15, 1998**

Related U.S. Application Data

(63) Continuation of application No. 08/612,289, filed on Mar. 7, 1996, now Pat. No. 5,881,231.

(30) **Foreign Application Priority Data**

Mar. 7, 1995 (JP) 07-047570

(51) **Int. Cl.**[7] **G06F 15/16**

(52) **U.S. Cl.** **709/229**; 709/201; 709/202; 709/217; 709/226; 711/170; 711/164; 713/200

(58) **Field of Search** 342/457; 382/305; 709/217–226, 229, 201, 202; 711/170, 164; 712/216, 217; 707/100, 4, 3; 713/200

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,029,104	7/1991	Dodson et al.	364/514
5,305,389	4/1994	Palmer	382/1
5,345,584	9/1994	Hill	395/600
5,487,156 *	1/1996	Popescu et al.	712/217
5,511,175 *	4/1996	Favor et al.	712/216
5,572,221 *	11/1996	Marlevi et al.	342/457

OTHER PUBLICATIONS

Kistler et al., "Disconnected Operation in the Coda File System", ACM Transaction on Computer Systems, vol. 10, No. 1, pp. 3–25, Feb. 1992.

Korner, "Intelligent Caching for Remote File Service", Computer Systems, pp. 220–226, May 28, 1990.

Lim, "Adaptive Caching in a Distributed File System", Ph.D Thesis, Abstract oly (1996).

Jain et al., "A Caching Strategy to Reduce Network Impacts of PCS" IEEE (1994).

Lim et al., "A Remote File System for Heterogeneous Network Topologies" IEEE (1993).

* cited by examiner

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(57) **ABSTRACT**

An information processing system in which the necessary information can be transferred via a network by the time this information becomes actually necessary, without damaging the utility and convenience from the user's point of view. An information transfer to a first information processing apparatus from a second information processing apparatus via a network is realized by predicting a necessary information which will be required by a user using the first information processing apparatus in future and a necessary time by which the necessary information will be actually required by the user, according to a knowledge concerning an activity schedule of the user; and controlling the transfer of the necessary information from the second information processing apparatus to the first information processing apparatus via the network such that the necessary information will be transferred by the necessary time.

20 Claims, 14 Drawing Sheets